

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Algebra 1B: SELL Word Problems**

**Systems, Exponential, Linear, Logic Word Problems (SELL)**

**Due: (no later than) Friday, 1/30**

1. Theo bought a pair of jeans and a shirt for a total of seventy-four dollars. The jeans cost eight dollars more than the shirt. Use a system of linear equations to find the cost of the jeans and the cost of the shirt.

a. Define two variables that make sense for the situation.

b. Write a system of linear equations.

c. Solve the system.

d. Check your work via substitution.

2. Audrey deposits \$12,780 into a savings account with an annual interest rate of 2.44%. If the interest is compounded quarterly, how much money will Audrey have in her account in 2018?

a. Write the equation for the situation.

b. Write your answer. Round to the nearest cent.

3. Radmir offered to help his neighbors after the most recent snowstorm - for a price. He charged a flat fee of \$30, plus an additional \$10 per hour. Use a linear equation to describe the relationship between the total money Radmir makes and the hours he works.

a. Define two variables that make sense for the situation.

b. Write a linear equation.

c. Graph the linear equation. Label your axes.

d. How much money will Radmir make if he works for seven hours?

4. The northern hairy-nosed wombat is endangered due to predation by wild dogs and competition with cattle and sheep for food. If no steps are taken, the population of the northern hairy-nosed wombat will decrease by an annual rate of 3.6%. If there are currently 321,093 northern hairy-nosed wombats, how many will there be in 2028?

a. Write the equation for the situation

b. Write your answer. Round to the nearest whole number.

5. Fluorine-18 is used as a radioisotope for the radioactive labeling of molecules in positron emission tomography (PET scans). The half-life of fluorine is one hundred ten minutes. If a PET scan begins by injecting one isotope of fluorine, what portion of the isotope will remain after eleven hours?

a. Write the equation for the situation.

b. Write your answer. Do not round.

6. Bjorn, Toya and Geist are purchasing snacks for a field trip. Bjorn buys three sodas, one apple and four bags of chips for a total of nineteen dollars. Toya buys two sodas, two apples and one bag of chips for nine dollars. Geist buys five sodas, two apples and two bags of chips for eighteen dollars. What is the price of one soda? one apple? one bag of chips?

a. Define three variables that make sense for the situation.

b. Write a system of three linear equations.

c. Solve the system.

d. Check your work via substitution.

**#7 is a logic puzzle that you must retrieve from Ms. Chall  
or the Extra Copies Folder in the classroom or print  
from this link:**

**<http://www.logic-puzzles.org/pdf/R998QT.pdf>**